HANDY TRUCK LINE

Permit to Construct Application

Prepared for:

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1.0 INTRODUCTION

This document contains the following sections that will serve to meet the Idaho Department of Environmental Quality (IDEQ) Permit to Construct (PTC) Application requirements provided in Idaho Administrative Procedures Act (IDAPA) 58.01.01.200-228 for the Handy Truck Lines facility located in Meridian, Idaho. Section 2.0 provides facility information, presents a process description, identifies emission units, and provides a summary of potential-to-emit (PTE) emissions from the facility. Section 3.0 discusses the Class II area air quality impact analysis. Modeling was conducted to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) and Idaho toxic air pollutant (TAP) standards. References are provided in Section 4.0. IDEQ PTC forms, emission calculations, modeling files, and other supporting documentation are provided in Appendices A through D. The manufacturer's data and climate data for Boise, Idaho are provided in Attachments 1 and 2. The Handy facility will be a minor source of criteria pollutants and hazardous air pollutants (HAPs).

1.1 EMISSION INVENTORY AND MODELING – EXPLANATION OF CHANGES

Staff from IDEQ and Tetra Tech teleconferenced on July 23, 2008 to discuss review comments from IDEQ on the PTC application. In summary, the emissions were overestimated during the air modeling because of conservative assumptions and an error in the emissions inventory spreadsheet relating to stack diameters. Even with these overestimated emissions, Handy Truck Line was substantially below the ambient air quality thresholds. Thus, IDEQ advised Tetra Tech that remodeling would not be required unless Handy Truck Line decided to request additional operating hours in excess of 4,020 hours per year. Tetra Tech conferred with Handy Truck Line, and the Responsible Official Brett McMichael stated that they would not request additional operating hours. For these reasons, the modeling was not rerun, and the emissions inventory is being submitted with IDEQ comments that Handy Truck Line has accepted verbatim. A follow-up telephone discussion between Cheryl Robinson (IDEQ) and Sandra Carroll (Tetra Tech) on August 18, 2008 confirmed these changes.

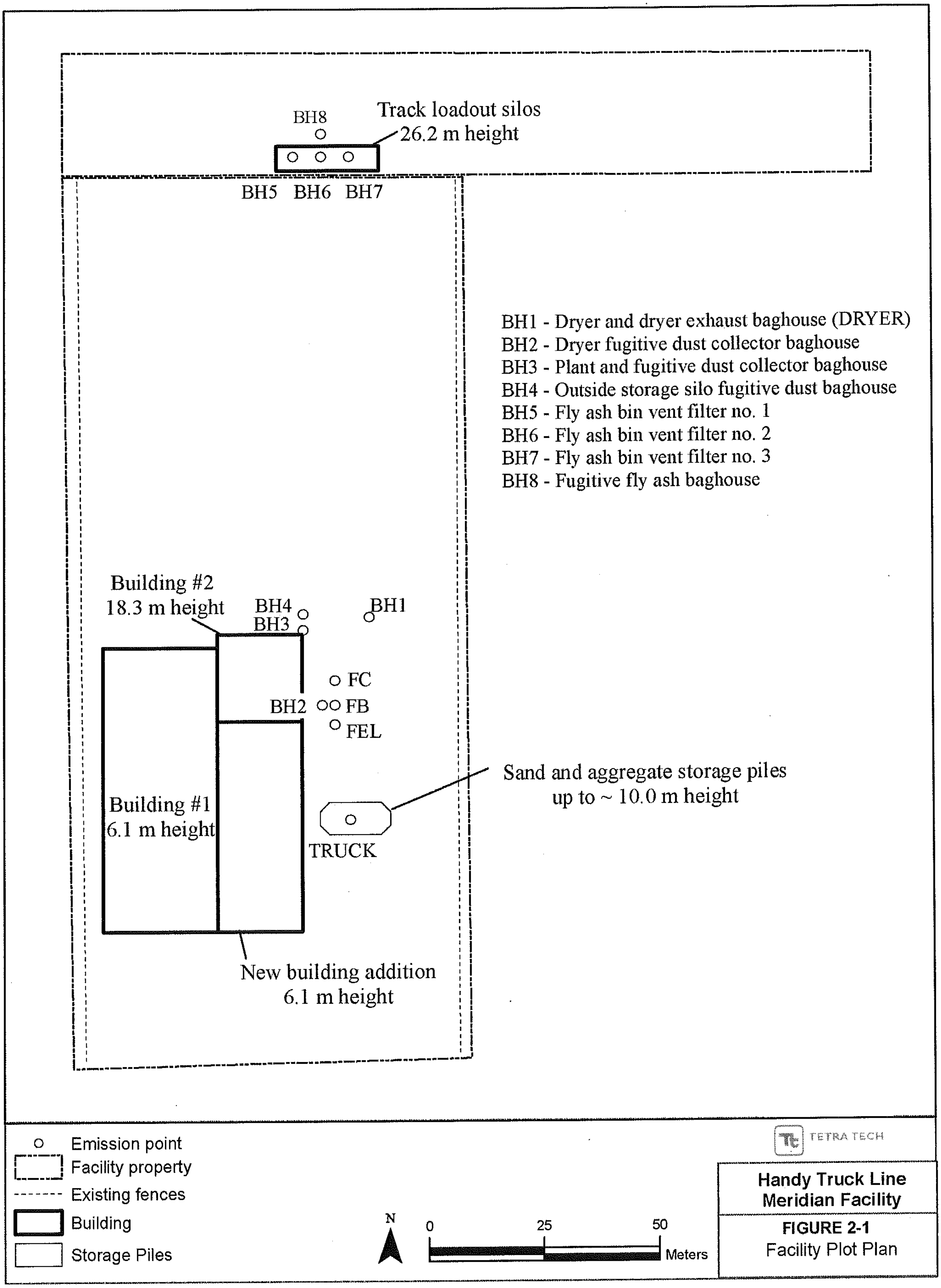
2.0 FACILITY INFORMATION

The Handy Truck Lines facility (Handy) is located at 630 East King Street, Meridian, Ada County, Idaho, in the Meridian Business Park. The Handy facility (SIC Code 3273) produces batch and custom mixtures of cement and concrete for commercial sales. During winter months (November through March), the Handy facility operates from 8:00am to 5:00pm, four days per week. During the summer months (April through October), the Handy facility operates from 5:00am to 5:00pm, typically six days per week.

The Handy facility is composed of three buildings connected by breezeways. These buildings are the Existing Building #1, Existing Building #2, and New Building Addition. Existing Building #1 and the New Building Addition contain storage warehouses, while Existing Building #2 houses the dry mix plant. Figure 2-1 shows a plot plan of the facility and the property boundaries, Figure 2-2 shows an aerial view of the facility, and Figure 2-3 shows a site location map. Note that the aerial photo (Image Year 2007) does not show the New Building Addition or the Ventilex dryer, though these structures currently exist on site. The facility is generally located at Universal Transverse Mercator (UTM) coordinates 549,700 meters (m) east and 4,828,400 m north [North American Datum (NAD) 83)], zone 11.

2.1 PROCESS DESCRIPTION

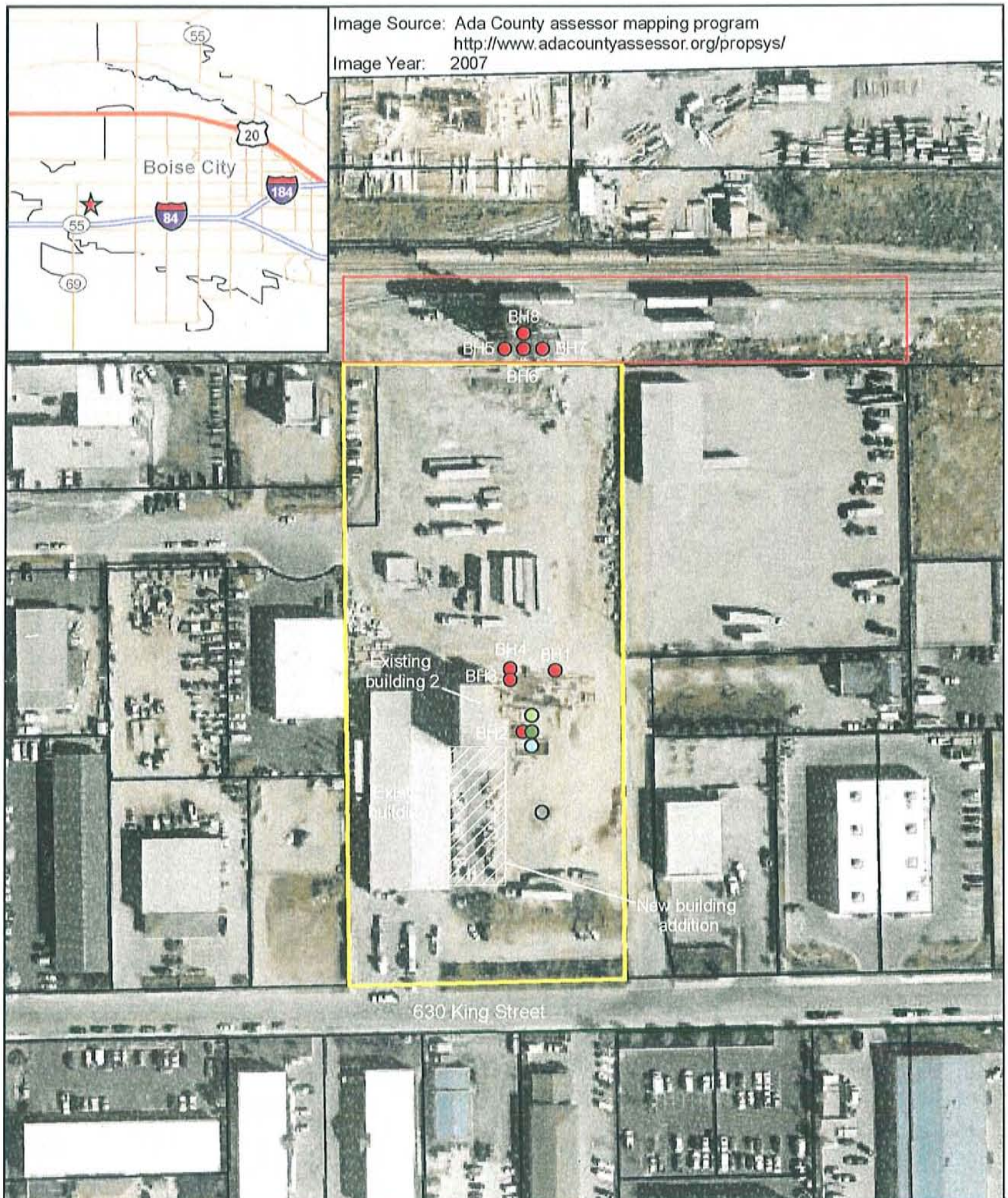
The Handy facility conducts two separate processes: fly ash and cement transloading, and cement and concrete production. In the fly ash and cement transloading process, fly ash and cement are first delivered to the Handy facility by railcar. A maximum of 335,000 tons per year (tons/yr) of fly ash and 600,000 tons/yr of cement may be delivered to the facility. The raw material is transferred via underground, covered screw conveyor to one of seven storage silos in the load-out area, which is adjacent to the railroad spur on the northern end of the property. Four baghouses control fugitive dust from the transloading area and storage silos. Most of the siloed material is loaded from the silos into delivery trucks, which transport the material offsite to ready-mix concrete companies. Bulk trailers pull onto the scale in the transloading area and an extendable boot is pulled down over a filling spout that is connected to a dust collector. A 20-inch access port is located on top of each trailer. The filling spout is lowered into this access port and the load of bulk material is dropped into the trailer. The typical load is 35 tons, and the loading rate is 15 minutes per load. Emissions from the truck loadout process are captured in the fugitive fly ash baghouse. Approximately 324,500 tons/yr of fly ash and 494,880 tons/yr of cement are shipped off-site. The remainder of the fly ash and cement is used by Handy in the cement and concrete production process, discussed below.



Handy Truck Line
Meridian Facility

FIGURE 2-1
Facility Plot Plan

Image Source: Ada County assessor mapping program
http://www.adacountyassessor.org/propsys/
Image Year: 2007



Baghouses
BH1 - Dryer and dryer exhaust baghouse (DRYER)
BH2 - Dryer fugitive dust collector baghouse
BH3 - Plant and fugitive dust collector baghouse
BH4 - Outside storage silo fugitive dust baghouse
BH5 - Fly ash bin vent filter no 1
BH6 - Fly ash bin vent filter no 2
BH7 - Fly ash bin vent filter no 3
BH8 - Fugitive fly ash baghouse

Hoppers (FEL)
Storage piles (TRUCK)
Feed conveyor transfer point (FC)
Feeder belt transfer point (FB)
Facility property
Railroad lease property
Parcels

N
0 20 40 Meters

TETRA TECH

Handy Truck Line Meridian Facility

FIGURE 2-2
Aerial View

Handy Truck Line Meridian Facility

Source: ESRI Data & Maps [CD-ROM]. (2005). Redlands, CA: Environmental Systems Research Institute.

N

0 2.5 5 Kilometers

TETRA TECH

Handy Truck Line Meridian Facility

FIGURE 2-3

Facility Location

The cement and concrete production process takes place both inside and outside the facility's buildings. Raw materials for this process consist of sand, gravel, fly ash, cement, and lime. First, trucks deliver sand and gravel (a maximum of 262,800 tons/yr sand and 131,400 tons/yr gravel) to the storage yard on the southeastern portion of the property, where the raw material is off-loaded into one of four uncovered stockpiles (typically, three sand piles and one gravel pile). The sand and gravel are typically moist in the winter and dry in the summer. The stockpiles are watered when necessary to reduce fugitive dust emissions, mainly during the summer months.

Sand and gravel are transferred from the storage piles to the wet product sand hopper or the wet product gravel hopper using a front-end loader. The hoppers are located outside of the buildings. From the hoppers, the sand and gravel are transferred to one of two feeder belts. From the feeder belts, sand and gravel are transferred to a feed conveyor, which feeds a 10-million BTU per hour (mmBTU/hr) natural gas-fired dryer, also located outside the main building. This fluid bed dryer has a maximum feed rate of 45 tons per hour (tons/hr) combined sand and gravel. The dryer controls the facility's production rate. The dryer could potentially operate 24 hours per day, 365 days per year, resulting in a maximum feed rate of 394,200 tons/yr combined sand and gravel. In the dryer, material is heated to 400 degrees Fahrenheit (°F) then cooled to ambient temperature. Efficient consumption of energy is attained through heat recovery from the flue gases. The fluid bed is divided into two compartments – one for drying and one for evaporative cooling within the same installation. Material is dried in the front compartment and cooled in the back compartment. Air from the cooling cycle is then used as intake air for the burner. Approximately 90% of the burner air is recycled air and 10% is fresh air from outside. Fugitive dust from the dryer is controlled with a dust collector. Two baghouses control emissions from the drying process.

Once the material is dried and cooled, it is transferred via conveyor to a classifier. The material is sorted in the classifier (7 mesh sand and ½-inch rock) and rejected or accepted based on size. The larger pieces are rejected and moved to the reject conveyor. The small amount of rejected material typically stays onsite and is used as parking area material. Accepted material is loaded into the bucket elevator.

The process moves inside the dry mix plant when the bucket elevator transfers sorted material to the dry mix storage silos. Three aggregate silos are used for storage of processed gravel and sand. Two of these silos are inside the facility and one is outside. The Handy facility uses six powder silos for storage of cement, fly ash, and lime, all of which are inside the facility. Cement and fly ash come from the transloading facility (105,120 tons/yr cement and 10,500 tons/yr fly ash) and are pneumatically loaded into the silos. The lime (approximately 15,800 tons/yr) is delivered via truck and pneumatically loaded into the silos.

From the silos, sand, gravel, fly ash, lime, and cement are metered out and transferred to the covered weigh belt feeder. This material is transferred via weigh belt feeder to the baffle mixer. The final mixture is then moved to the valve bagger for bagging. A baghouse controls fugitive dust emissions from the dry mix process.

Finished bags of cement and concrete are moved to the palletizer. Pallets of bags are moved using a forklift to the warehouse for shipping or storage. These pallets are loaded onto trucks, which then depart the property for the sales destination. The maximum annual production capacity is 525,600 tons/yr cement and concrete.

2.2 SUMMARY OF EMISSION UNITS

The following emissions units are included in the Permit to Construct application:

- Baghouses
- Conveyor transfer points
- Sand and gravel loading and unloading
- Ventilex dryer

Tables 2-1, 2-2, 2-3 and 2-4 contain summary emission estimates for these processes. Tables 2-1 and 2-2 present annual emission rates for criteria pollutants and HAPs. Tables 2-3 and 2-4 present annual emission rates for TAPs. Emission rates in all tables are apportioned by source. Maximum processing and production rates were used to calculate emissions. Details of emissions calculations for all Handy facility sources have been provided with this permit application. According to IDEQ, emissions from vehicles and wind erosion do not need to be included in the emission inventory (IDEQ 2008a) and have therefore not been quantified herein. Chromium-VI speciation estimates were provided by IDEQ (IDEQ 2008e).

2.3 INSIGNIFICANT ACTIVITIES

Certain operations and activities performed on-site produce air emissions that are considered insignificant with respect to Idaho Tier I air quality permit regulations, according to the Idaho Administrative

Procedures Act (IDAPA) 58.01.01.317. However, it does not appear that activities at the facility can be considered insignificant under Idaho modeling guidelines. Therefore all quantified emission units at the Handy facility were included in the dispersion modeling effort.

TABLE 2-1

PROJECTED FACILITY-WIDE ANNUAL CRITERIA POLLUTANT AND HAP EMISSIONS (TONS PER YEAR)[1]

DEQ COMMENTS

EMISSIONS	Dryer	Baghouse Emissions	*TOTAL POINT SOURCE EMISSIONS*	Material Handling Sources[2]	Conveyor Belt Emissions	*TOTAL FUGITIVE EMISSIONS*	TOTAL EMISSIONS
Criteria Pollutants							
CO	4.02	--	*4.02*	--	--	*--*	**4.02**
NOx	2.11	--	*2.11*	--	--	*--*	**2.11**
PM_{10}	0.15	11.30	*11.45*	0.57	0.69	*1.27*	**12.72**
PM	0.15	11.30	*11.45*	1.22	1.46	*2.67*	**14.12**
VOC	0.11	--	*0.11*	--	--	*--*	**0.11**
SO_2	0.01	--	*0.01*	--	--	*--*	**0.01**
Pb	9.85E-06	--	*9.85E-06*	--	--	*--*	**9.85E-06**
HAPs							
Benzene	4.14E-05	--	*4.14E-05*	--	--	*--*	**4.14E-05**
Formaldehyde	1.48E-03	--	*1.48E-03*	--	--	*--*	**1.48E-03**
Hexane	3.55E-02	--	*3.55E-02*	--	--	*--*	**3.55E-02**
Naphthalene	1.20E-05	--	*1.20E-05*	--	--	*--*	**1.20E-05**
Toluene	6.76E-05	--	*6.76E-05*	--	--	*--*	**6.76E-05**
Arsenic	3.94E-06	2.50E-09	*3.94E-06*	--	--	*--*	**3.94E-06**
Beryllium	2.36E-07	1.43E-10	*2.37E-07*	--	--	*--*	**2.37E-07**
Cadmium	2.17E-05	1.45E-10	*2.17E-05*	--	--	*--*	**2.17E-05**
Chromium	2.76E-05	1.94E-09	*2.76E-05*	--	--	*--*	**2.76E-05**
Cobalt	1.66E-06	--	*1.66E-06*	--	--	*--*	**1.66E-06**
Lead	--	1.22E-09	*1.22E-09*	--	--	*--*	**1.22E-09**
Manganese	7.49E-06	1.26E-07	*7.61E-06*	--	--	*--*	**7.61E-06**
Mercury	5.12E-06	--	*5.12E-06*	--	--	*--*	**5.12E-06**
Nickel	4.14E-05	1.42E-08	*4.14E-05*	--	--	*--*	**4.14E-05**
Selenium	4.73E-07	1.06E-10	*4.73E-07*	--	--	*--*	**4.73E-07**
Total HAPs	**3.72E-02**	**1.46E-07**	*3.72E-02*	**0.00E+00**	**0.00E+00**	***0.00E+00***	**3.72E-02**

1 '--' Emissions of compound are either not present or were not reported in the literature reviewed; 'TBD' To be determined

2 Material handling sources include truck unloading and front-end loader loading.

TABLE 2-2

PROJECTED FACILITY-WIDE HOURLY CRITERIA POLLUTANT AND HAP EMISSIONS (POUNDS PER HOUR)[1]

EMISSIONS	Dryer	Baghouse Emissions	*TOTAL POINT SOURCE EMISSIONS*	Material Handling Sources[2]	Conveyor Belt Emissions	*TOTAL FUGITIVE EMISSIONS*	TOTAL EMISSIONS
Criteria Pollutants							
CO	2.00	--	*2.00*	--	--	--	**2.00**
NOx	1.05	--	*1.05*	--	--	--	**1.05**
PM_{10}	0.07	5.62	*5.70*	0.29	0.35	*0.63*	**6.33**
PM	0.07	5.62	*5.70*	0.60	0.73	*1.33*	**7.03**
VOC	0.05	--	*0.05*	--	--	--	**0.05**
SO_2	0.01	--	*0.01*	--	--	--	**0.01**
Pb	4.90E-06	--	*4.90E-06*	--	--	--	**4.90E-06**
HAPs							
Benzene	9.45E-06	--	*9.45E-06*	--	--	--	**9.45E-06**
Formaldehyde	3.37E-04	--	*3.37E-04*	--	--	--	**3.37E-04**
Hexane	1.76E-02	--	*1.76E-02*	--	--	--	**1.76E-02**
Naphthalene	5.98E-06	--	*5.98E-06*	--	--	--	**5.98E-06**
Toluene	3.36E-05	--	*3.36E-05*	--	--	--	**3.36E-05**
Arsenic	9.00E-07	5.72E-10	*9.00E-07*	--	--	--	**9.00E-07**
Beryllium	5.40E-08	3.27E-11	*5.40E-08*	--	--	--	**5.40E-08**
Cadmium	4.95E-06	3.32E-11	*4.95E-06*	--	--	--	**4.95E-06**
Chromium	1.37E-05	9.65E-10	*1.37E-05*	--	--	--	**1.37E-05**
Cobalt	8.24E-07	--	*8.24E-07*	--	--	--	**8.24E-07**
Lead	--	6.05E-10	*6.05E-10*	--	--	--	**6.05E-10**
Manganese	3.73E-06	6.25E-08	*3.79E-06*	--	--	--	**3.79E-06**
Mercury	2.55E-06	--	*2.55E-06*	--	--	--	**2.55E-06**
Nickel	9.45E-06	3.25E-09	*9.45E-06*	--	--	--	**9.45E-06**
Selenium	2.35E-07	5.26E-11	*2.35E-07*	--	--	--	**2.35E-07**
Total HAPs	**1.81E-02**	**6.80E-08**	*1.81E-02*	**0.00E+00**	**0.00E+00**	*0.00E+00*	**1.81E-02**

1 '--' Emissions of compound are either not present or were not reported in the literature reviewed; 'TBD' To be determined.

2 Material handling sources include truck unloading and front-end loader loading.

TABLE 2-3

PROJECTED FACILITY-WIDE ANNUAL TAP EMISSIONS (TONS PER YEAR)[1]

EMISSIONS	Dryer	Baghouse Emissions	*TOTAL POINT SOURCE EMISSIONS*	Material Handling Sources[2]	Conveyor Belt Emissions	*TOTAL FUGITIVE EMISSIONS*	TOTAL EMISSIONS
Organic TAPs							
Benzene	9.02E-05	--	*9.02E-05*	--	--	--	**9.02E-05**
Benzo(a)pyrene	5.15E-08	--	*5.15E-08*	--	--	--	**5.15E-08**
Formaldehyde	3.22E-03	--	*3.22E-03*	--	--	--	**3.22E-03**
Hexane	7.73E-02	--	*7.73E-02*	--	--	--	**7.73E-02**
3-Methylchloranthrene	7.73E-08	--	*7.73E-08*	--	--	--	**7.73E-08**
Naphthalene	2.62E-05	--	*2.62E-05*	--	--	--	**2.62E-05**
Pentane	1.12E-01	--	*1.12E-01*	--	--	--	**1.12E-01**
Toluene	1.47E-04	--	*1.47E-04*	--	--	--	**1.47E-04**
Inorganic TAPs							
Arsenic	8.59E-06	5.46E-09	*8.59E-06*	--	--	--	**8.59E-06**
Barium	1.89E-04	--	*1.89E-04*	--	--	--	**1.89E-04**
Beryllium	5.15E-07	3.12E-10	*5.16E-07*	--	--	--	**5.16E-07**
Cadmium	4.72E-05	3.17E-10	*4.72E-05*	--	--	--	**4.72E-05**
Chromium	6.01E-05	4.23E-09	*6.01E-05*	--	--	--	**6.01E-05**
Chromium-VI	--	1.23E-09	*1.23E-09*	--	--	--	**1.23E-09**
Cobalt	3.61E-06	--	*3.61E-06*	--	--	--	**3.61E-06**
Copper	3.65E-05	--	*3.65E-05*	--	--	--	**3.65E-05**
Lead	--	2.65E-09	*2.65E-09*	--	--	--	**2.65E-09**
Manganese	1.63E-05	2.74E-07	*1.66E-05*	--	--	--	**1.66E-05**
Mercury	1.12E-05	--	*1.12E-05*	--	--	--	**1.12E-05**
Molybdenum	4.72E-05	--	*4.72E-05*	--	--	--	**4.72E-05**
Nickel	9.02E-05	3.10E-08	*9.02E-05*	--	--	--	**9.02E-05**
Phosphorus	--	2.72E-08	*2.72E-08*	--	--	--	**2.72E-08**
Selenium	1.03E-06	2.31E-10	*1.03E-06*	--	--	--	**1.03E-06**
Zinc	1.25E-03	--	*1.25E-03*	--	--	--	**1.25E-03**
Total TAPs	**1.93E-01**	**3.47E-07**	***1.93E-01***	0.00E+00	0.00E+00	***0.00E+00***	1.93E-01

1 '--' Emissions of compound are either not present or were not reported in the literature reviewed; 'TBD' To be determined.
2 Material handling sources include truck unloading and front-end loader loading.

TABLE 2-4

PROJECTED FACILITY-WIDE HOURLY TAP EMISSIONS (POUNDS PER HOUR)[1]

DEQ COMMENTS

EMISSIONS	Dryer	Baghouse Emissions	*TOTAL POINT SOURCE EMISSIONS*	Material Handling Sources[2]	Conveyor Belt Emissions	*TOTAL FUGITIVE EMISSIONS*	TOTAL EMISSIONS
Organic TAPs							
Benzene	4.14E-05	--	*4.14E-05*	--	--	--	**4.14E-05**
Benzo(a)pyrene	2.36E-08	--	*2.36E-08*	--	--	--	**2.36E-08**
Formaldehyde	1.48E-03	--	*1.48E-03*	--	--	--	**1.48E-03**
Hexane	3.55E-02	--	*3.55E-02*	--	--	--	**3.55E-02**
3-Methylchloranthrene	3.55E-08	--	*3.55E-08*	--	--	--	**3.55E-08**
Naphthalene	1.20E-05	--	*1.20E-05*	--	--	--	**1.20E-05**
Pentane	5.12E-02	--	*5.12E-02*	--	--	--	**5.12E-02**
Toluene	6.76E-05	--	*6.76E-05*	--	--	--	**6.76E-05**
Inorganic TAPs							
Arsenic	3.94E-06	2.50E-09	*3.94E-06*	--	--	--	**3.94E-06**
Barium	8.67E-05	--	*8.67E-05*	--	--	--	**8.67E-05**
Beryllium	2.36E-07	1.43E-10	*2.37E-07*	--	--	--	**2.37E-07**
Cadmium	2.17E-05	1.45E-10	*2.17E-05*	--	--	--	**2.17E-05**
Chromium	2.76E-05	1.94E-09	*2.76E-05*	--	--	--	**2.76E-05**
Chromium-VI	--	5.66E-10	*5.66E-10*	--	--	--	**5.66E-10**
Cobalt	1.66E-06	--	*1.66E-06*	--	--	--	**1.66E-06**
Copper	1.68E-05	--	*1.68E-05*	--	--	--	**1.68E-05**
Lead	--	1.22E-09	*1.22E-09*	--	--	--	**1.22E-09**
Manganese	7.49E-06	1.26E-07	*7.61E-06*	--	--	--	**7.61E-06**
Mercury	5.12E-06	--	*5.12E-06*	--	--	--	**5.12E-06**
Molybdenum	2.17E-05	--	*2.17E-05*	--	--	--	**2.17E-05**
Nickel	4.14E-05	1.42E-08	*4.14E-05*	--	--	--	**4.14E-05**
Phosphorus	--	1.25E-08	*1.25E-08*	--	--	--	**1.25E-08**
Selenium	4.73E-07	1.06E-10	*4.73E-07*	--	--	--	**4.73E-07**
Zinc	5.71E-04	--	*5.71E-04*	--	--	--	**5.71E-04**
Total TAPs	**8.85E-02**	**1.59E-07**	***8.85E-02***	**0.00E+00**	**0.00E+00**	***0.00E+00***	**8.85E-02**

1 '--' Emissions of compound are either not present or were not reported in the literature reviewed; 'TBD' To be determined.

2 Material handling sources include truck unloading and front-end loader loading.

3.0 CLASS II AREA AIR QUALITY IMPACT ANALYSIS

This section describes the technical approach used for a Class II air quality impact analysis for the Handy facility. The modeling addresses the impacts from all processes involved in facility operations. The dispersion modeling follows the guidance and protocols outlined in the *State of Idaho Air Quality Modeling Guideline* (IDEQ Modeling Guideline; IDEQ 2002) and the U.S. Environmental Protection Agency (EPA) *Guideline on Air Quality Models (Revised)* (EPA 2005). A modeling protocol describing the proposed modeling approach was submitted to IDEQ on April 11, 2008 (Tetra Tech 2008). This protocol was approved with resolution of comments on April 12, 2008 (IDEQ 2008d).

The IDEQ Modeling Guideline indicates that "a modeling analysis is generally required with each permit application for new construction or a modification that results in an increase in emissions of pollutants for sources permitted by DEQ. The types of permits that require a facility to demonstrate compliance with the NAAQS are permits to construct and Tier II operating permits. A modeling analysis may also be required to demonstrate compliance with the TAP standards." The Handy facility is located in Ada County, which is designated as attainment/unclassifiable for NAAQS pollutants.

For new permit applications, IDEQ established modeling thresholds for criteria pollutant emissions. If the facility-wide emissions for a given pollutant are less than modeling thresholds, dispersion modeling for that pollutant is not required. Criteria pollutants that were assessed include particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), nitrogen oxides (NO_x) as nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Pb). IDEQ does not require dispersion modeling for volatile organic compounds (VOC) to ozone conversion as part of the permitting process. For TAPs, the facility-wide emissions are compared to screening emission levels (ELs). Modeling is required for those TAPs with emissions that are equal to or greater than the ELs. Applicable ELs are provided in IDAPA 58.01.01.585 and 586.

Modeling thresholds for criteria pollutants are shown in Table 3-1, along with a summary of projected Handy facility emissions. Based on comparisons shown in Table 3-1, NO_x and PM_{10} were the only criteria pollutants that needed to be modeled. Handy facility emissions of all other criteria pollutants were estimated to be less than modeling thresholds.

TABLE 3-1

MODELING THRESHOLDS AND TOTAL PROJECTED CRITERIA POLLUTANT EMISSIONS

Pollutant	Long-Term Modeling Threshold	Projected Handy Facility Emissions	Short-Term Modeling Threshold	Projected Handy Facility Emissions
CO	N/A[a]	N/A[a]	14 lbs/hr	2.0 lbs/hr
NO_x	1 ton/yr	**4.6 tons/yr**	N/A[a]	N/A[a]
PM_{10}	1 ton/yr	**26.2 tons/yr**	0.2 lbs/hr	**6.0 lbs/hr**
SO_2	1 ton/yr	0.03 tons/yr	0.2 lbs/hr	0.01 lbs/hr
Pb	0.6 tons/yr	2.15×10^{-5} tons/yr	100 lbs/month	1.79×10^{-6} lbs/month

a N/A = not applicable.

ELs for TAPs emitted at the Handy facility are shown in Table 3-2, along with a summary of projected Handy facility hourly emissions. Emissions of four TAPs exceeded their respective ELs – formaldehyde, arsenic, cadmium, and chromium-VI. These pollutants were modeled as per IDAPA 58.01.01.585 and 586.

IDEQ recommends that a preliminary analysis (PA) first be conducted when dispersion modeling is warranted. Facility-wide emissions are modeled for the PA to evaluate whether a significant impact exists. Model results are compared to the Class II Significant Contribution Levels (SCLs). Table 3-3 shows the SCLs, which are used to assess whether or not a facility has a significant impact at downwind receptors. When modeling results do not exceed SCLs for a pollutant, no further analysis for that pollutant is required. Based on the comparisons shown in Table 3-1, annual NO_x and annual and 24-hour PM_{10} emissions from the Handy facility were modeled to determine if a significant impact exists.

A full impact analysis (FIA) must be performed if any of the model results exceed the SCLs, which typically requires adding facility-wide emissions to a background concentration to estimate a total concentration. Background concentrations were obtained from IDEQ for the cumulative impact analysis (IDEQ 2008c). The total concentration for a pollutant must demonstrate compliance with the National Ambient Air Quality Standards (NAAQS). Table 3-3 shows the NAAQS increments with which the Handy facility must comply. A Prevention of Signification Deterioration (PSD) increment compliance demonstration is not required because the Handy facility will be a minor source of air pollution.

TABLE 3-2

SCREENING EMISSION LEVELS AND TOTAL PROJECTED TAP EMISSIONS (POUNDS PER HOUR)

DEQ COMMENTS - **Carcinogens listed in Section 586 are subject to an annual standard (lb/hr, annual average)**
Noncarcinogens are subject to a 24-hr standard (lb/hr, 24-hr average): Winter lb/hr x 9/24, Summer lb/hr x 12/24

EMISSIONS	Dryer	Baghouse Emissions	*TOTAL POINT SOURCE EMISSIONS*	Material Handling Sources[2]	Conveyor Belt Emissions	*TOTAL FUGITIVE EMISSIONS*	TOTAL EMISSIONS	EL (lb/hr)	Exceeds EL?
Organic TAPs									
Benzene	9.45E-06	--	*9.45E-06*	--	--	--	**9.45E-06**	8.00E-04	--
Benzo(a)pyrene	5.40E-09	--	*5.40E-09*	--	--	--	**5.40E-09**	2.00E-06	--
Formaldehyde	3.37E-04	--	*3.37E-04*	--	--	--	**3.37E-04**	**5.10E-04**	--
Hexane	1.76E-02	--	*1.76E-02*	--	--	--	**1.76E-02**	12	--
3-Methylchloranthrene	8.10E-09	--	*8.10E-09*	--	--	--	**8.10E-09**	2.50E-06	--
Naphthalene	5.98E-06	--	*5.98E-06*	--	--	--	**5.98E-06**	3.33	--
Pentane	2.55E-02	--	*2.55E-02*	--	--	--	**2.55E-02**	118	--
Toluene	3.36E-05	--	*3.36E-05*	--	--	--	**3.36E-05**	25	--
Inorganic TAPs									
Arsenic	9.00E-07	5.72E-10	*9.00E-07*	--	--	--	**9.00E-07**	**1.50E-06**	--
Barium	4.31E-05	--	*4.31E-05*	--	--	--	**4.31E-05**	0.033	--
Beryllium	5.40E-08	3.27E-11	*5.40E-08*	--	--	--	**5.40E-08**	2.80E-05	--
Cadmium	4.95E-06	3.32E-11	*4.95E-06*	--	--	--	**4.95E-06**	**3.70E-06**	Yes
Chromium	1.37E-05	9.65E-10	*1.37E-05*	--	--	--	**1.37E-05**	3.30E-02	--
Chromium-VI	--	1.29E-10	*1.29E-10*	--	--	--	**1.29E-10**	5.60E-07	--
Cobalt	8.24E-07	--	*8.24E-07*	--	--	--	**8.24E-07**	0.0033	--
Copper	8.33E-06	--	*8.33E-06*	--	--	--	**8.33E-06**	0.067	--
Lead - NAAQS ONLY	--	6.05E-10	*6.05E-10*	--	--	--	**6.05E-10**	--	--
Manganese	3.73E-06	6.25E-08	*3.79E-06*	--	--	--	**3.79E-06**	0.333	--
Mercury	2.55E-06	--	*2.55E-06*	--	--	--	**2.55E-06**	0.007	--
Molybdenum	1.08E-05	--	*1.08E-05*	--	--	--	**1.08E-05**	0.667	--
Nickel	9.45E-06	3.25E-09	*9.45E-06*	--	--	--	**9.45E-06**	2.70E-05	--
Phosphorus	--	6.22E-09	*6.22E-09*	--	--	--	**6.22E-09**	0.007	--
Selenium	2.35E-07	5.26E-11	*2.35E-07*	--	--	--	**2.35E-07**	0.013	--
Zinc	2.84E-04	--	*2.84E-04*	--	--	--	**2.84E-04**	0.667	--
Total TAPs	**4.36E-02**	**7.44E-08**	***4.36E-02***	**0.00E+00**	**0.00E+00**	***0.00E+00***	**4.36E-02**	--	--

1 '--' Emissions of compound are either not present or were not reported in the literature reviewed; 'TBD' To be determined
2 Material handling sources include truck unloading and front-end loader loading.

TABLE 3-3

CLASS II SIGNIFICANT CONTRIBUTION LEVELS AND AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Period	Significant Contribution Level ($\mu g/m^3$)[a]	National AAQS ($\mu g/m^3$)[a]
NO_2	Annual	1	100
SO_2	Annual 24-hour 3-hour	1 5 25	80 365 [b] 1,300 [b]
CO	8-hour 1-hour	500 2,000	10,000[b] 40,000[b]
PM_{10}	Annual 24-hour	1 5	50 150[b]
Pb	Quarterly	N/A	1.5
Ozone	1-hour	N/A	235

a $\mu g/m^3$ = micrograms per cubic meter; N/A = not applicable
b Not to be exceeded more than once per calendar year

Dispersion modeling was also performed for all TAPs that exceeded the ELs to demonstrate compliance with the Acceptable Ambient Concentrations (AACs), listed in IDAPA 58.01.01.585 and .586. Based on the initial emission inventory, formaldehyde, arsenic, and cadmium exceeded their respective ELs and needed to be modeled.

The following sections discuss the dispersion model that was used in this analysis, potential wake effects of the structures at the Handy facility, terrain, meteorological data, receptors, and model parameters and results.

3.1 DISPERSION MODEL SELECTION

The dispersion modeling was conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD version 07026). This model is recommended by EPA for evaluating Class II impacts within 50 kilometers (km) of the facility being assessed (EPA 2004). Additionally, AERMOD was developed to handle complex terrain. In this analysis, AERMOD was used to predict maximum pollutant concentrations in ambient air from Handy facility emissions. AERMOD was run using all the regulatory default options including use of stack-tip downwash, buoyancy-induced dispersion, calms processing routines, upper-bound downwash concentrations for super-squat buildings, default wind speed profile exponents, vertical potential temperature gradients, and no use of gradual plume rise. Only pollutant dispersion was modeled for this analysis; particle deposition was not considered.

Models for NO_x, arsenic, cadmium, and formaldehyde were run assuming the facility operates 24 hours a day, 365 days per year. These model results are conservative, since the facility only operates a maximum of 12 hours a day. Emissions of 24-hour and annual PM_{10} were modeled to take into account the reduced operating hours. Emission factor files were created, which specified that the Handy facility operates only 9 hours a day in the winter months (November – March) and 12 hours a day in the summer months (April – October). Annual PM_{10} modeling was conducted assuming the facility operates 365 days per year.

3.2 BUILDING WAKE EFFECTS

The potential for downwash effects on stack emissions from nearby structures can be assessed in the AERMOD model. AERMOD model inputs include building dimensions to assess the potential for downwash effects. Building dimensions for the three main structures (Existing Building #1, Existing Building #2, and New Building Addition) were used to build the BPIP-prime (BPIPPRM) input file. The direction-specific downwash parameters were calculated using facility plot-plan maps and BPIPPRM software (version 04274), which is the building downwash program associated with the AERMOD model. Output from BPIPPRM was incorporated into the AERMOD modeling input files.

3.3 TERRAIN DESCRIPTION

The Handy facility is located in Meridian, Idaho, at an elevation of approximately 2,615 feet above mean sea level. The facility is situated in an industrial area with residential areas approximately one-quarter mile north and west of the facility. Industrial land is located to the east and south of the facility. Rural dispersion will be modeled for this effort.

The Handy facility is over 60 miles from the border of the closest Class I area (Sawtooth Wilderness Area). It is not anticipated that emissions from the Handy facility will impact any Class I areas.

3.4 METEOROLOGICAL DATA

Dispersion modeling was conducted using surface meteorological data from the National Weather Service (NWS) station located at the Boise Air Terminal in Boise, Idaho. This station is approximately 8 miles from the Handy facility. Data for the period January 1, 1988, through December 31, 1992 were used. Upper air meteorological data from the Boise, Idaho NWS station for the same period were also used.

These data were selected because they are the most representative available for site conditions at the Handy facility and were recommended by Kevin Schilling of IDEQ via electronic mail (IDEQ 2008b). AERMOD-ready processed meteorological data were provided by IDEQ (IDEQ 2008b). Figure 3-1 shows a windrose diagram of the five years of meteorological data to be used in the modeling analysis.

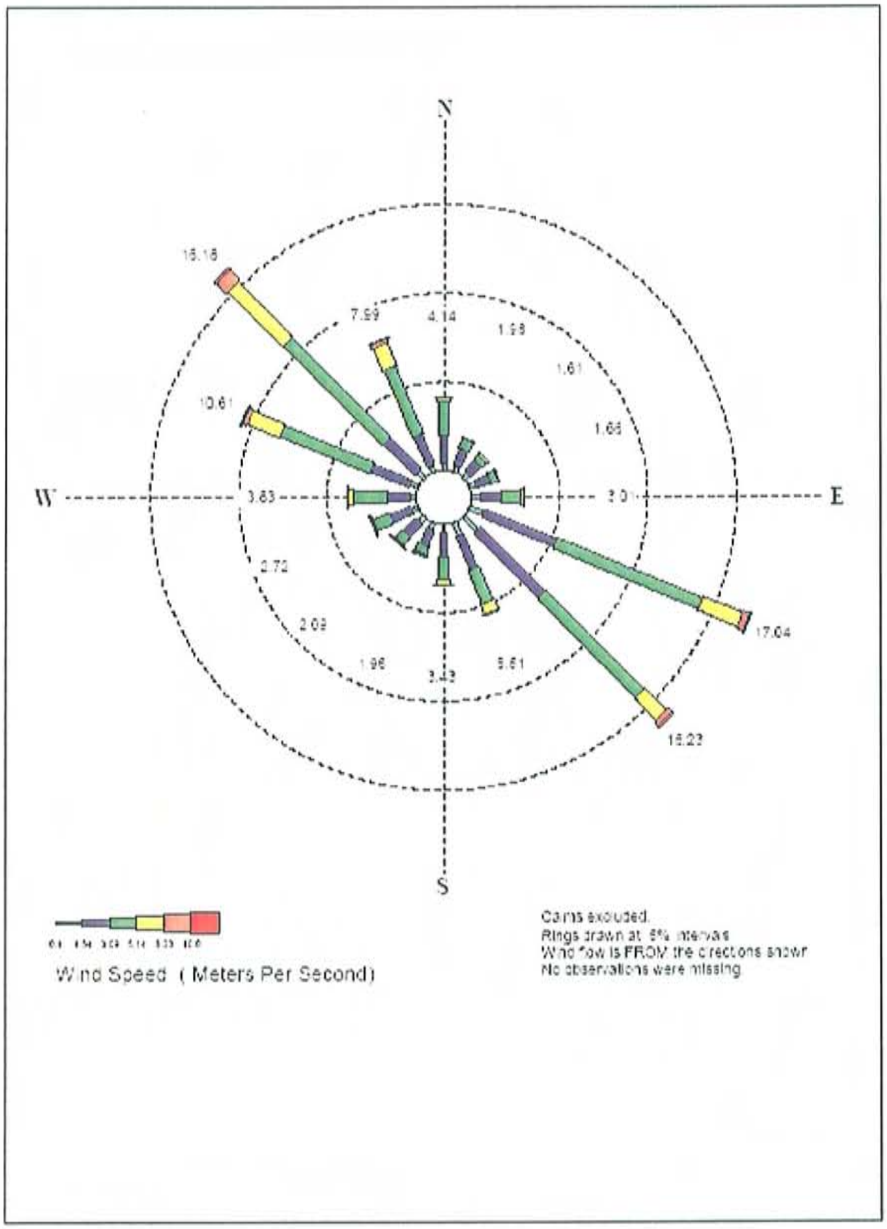
3.5 RECEPTORS

The Handy facility modeling was completed using a model receptor grid that ensures that maximum estimated impacts from the facility were identified. Following IDEQ and EPA guidelines, receptor locations were identified with sufficient density and spatial coverage to isolate the area with the highest impacts. The following receptor location groups were used for the analysis to accomplish this coverage:

- Fence line at 10-meter intervals;
- 100-meter receptor spacing out to 1 km in all directions from the center of the Handy facility;
- 500-meter receptor spacing between 1 km and 5 km from the Handy facility; and
- 1000-meter receptor spacing between 5 km and 10 km from the Handy facility.

FIGURE 3-1

BOISE, IDAHO METEOROLOGICAL STATION WINDROSE (1988-1992)



The fence line was considered as the property boundary. Public access to the property is restricted via fencing and warning signs. The total number of receptors used was 1,009.

Receptor locations are presented in UTM coordinates (NAD 83). Figure 3-2 shows the receptor grid relative to the Handy facility. Terrain elevations were assigned to all receptors using U.S. Geological Survey (USGS) 7.5-minute series digital elevation model (DEM) data in the AERMAP program (version 06341). DEM data are available in NAD 27 coordinates.

3.6 BACKGROUND CONCENTRATIONS

Ambient background concentrations represent the contribution of pollutant sources that are not included in the modeling analysis, including naturally occurring sources. Background concentrations for PM_{10} and NO_2 were obtained from IDEQ (IDEQ 2008c). The 24-hour and annual PM_{10} background concentrations (90 $\mu g/m^3$ and 25.1 $\mu g/m^3$, respectively) and annual NO_2 (40 $\mu g/m^3$) were used for this analysis. These data are based on monitoring data and default urban values and are anticipated to be conservative. Background concentrations were not available for TAP emissions.

3.7 MODEL PARAMETERS AND RESULTS

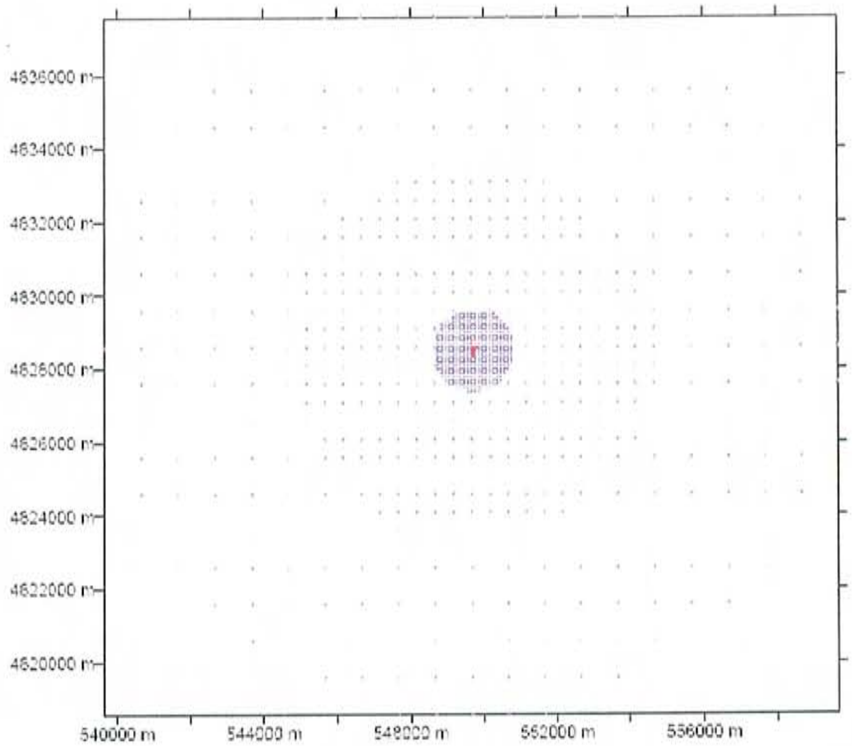
Modeled emissions sources at the Handy facility include both point sources and volume sources. Model parameters and emission rates are shown in Tables 3-4 and 3-5 and discussed below. Source locations are presented in UTM coordinates (NAD 83).

<u>Volume Sources</u>

Fugitive dust emissions from four sources were modeled. First, dust is generated when trucks unload sand and gravel into storage piles in the storage yard. Second, front-end loaders create dust emissions when sand and gravel are transferred from the storage piles to the wet product sand hopper or the wet product gravel hopper. Last, dust is generated when sand and gravel are transferred from the wet hoppers to a feeder belt, which transfers the material onto a feed conveyor. These four sources were modeled as volume sources. Volume source parameters were calculated based on AERMOD guidance, as explained in Tables 3-4 and 3-5. All other dust sources at the Handy facility are captured by one of eight baghouses, as discussed below.

FIGURE 3-2

HANDY TRUCK LINE RECEPTOR GRID



Notes:
Axis coordinates are presented in Universal Transverse Mercator (UTM) Zone 11 meters and the North American Datum of 1983 (NAD83).
xxx – Fence line receptor
xxx– Grid receptor

TABLE 3-4

CRITERIA POLLUTANT SOURCE EMISSION RATES AND STACK PARAMETERS

Source Description	Model ID	Source UTM Location[1]		Base Elevation (m)	Stack/ Release Height (m)[2]	Temperature (K)	Flow Rate (ft^3/min)	Velocity (m/s)	Diameter (m)	Sigma-y (m)[3]	Sigma-z (m)[4]	Long-Term Emission Rates (g/s)		Short-Term Emission Rates
		Easting (m)	Northing (m)									NOx	PM_{10}	PM_{10}
Volume Sources														
Truck Material Handling	TRUCK	549731.5	4828422.2	797.0	4.6	n/a	n/a	n/a	n/a	0.57	2.13	n/a	0.00827	0.01802
													0.066	0.143
Front-End Loader Material Handling	FEL	549728.2	4828442.8	797.0	5.0	n/a	n/a	n/a	n/a	0.43	2.33	n/a	0.00827	0.01802
													0.066	0.143
Feeder Belt Transfer	FB	549728.2	4828447.0	797.0	3.0	n/a	n/a	n/a	n/a	1.77	1.42	n/a	0.00998	0.02175
													0.079	0.173
Feed Conveyor Transfer	FC	549728.2	4828452.3	797.0	6.1	n/a	n/a	n/a	n/a	1.77	1.42	n/a	0.00998	0.02175
Point Sources														
Ventilex B.V. Fluid Bed Dryer & Cooler Baghouse	BH1	549735.6	4828466.0	797.0	9.1	477.6	11,000	10.01	0.81	n/a	n/a	n/a	0.0238	0.0520
													0.189	0.412
Dryer Fugitive Dust Collector Baghouse	BH2	549725.5	4828447.0	797.0	11.6	298.0	15,000	19.06	0.69	n/a	n/a	n/a	0.0372	0.0810
													0.295	0.643
Plant and Fugitive Dust Collector Baghouse	BH3	549721.4	4828466.6	797.0	9.1	298.0	18,000	16.38	0.81	n/a	n/a	n/a	0.1784	0.3888
													1.416	3.086
Outside Storage Silo Fugitive Dust Baghouse	BH4	549721.4	4828463.2	797.0	20.1	298.0	508	6.20	0.22	n/a	n/a	n/a	0.0050	0.0110
													0.040	0.087
Fly Ash Bin Vent Filter No. 1	BH5	549719.4	4828565.6	797.0	26.2	298.0	1,200	24.40	0.17	n/a	n/a	n/a	0.0119	0.0259
													0.094	0.206
Fly Ash Bin Vent Filter No. 2	BH6	549725.4	4828565.6	797.0	26.2	298.0	1,200	24.40	0.17	n/a	n/a	n/a	0.0119	0.0259
													0.094	0.206
Fly Ash Bin Vent Filter No. 3	BH7	549731.4	4828565.6	797.0	26.2	298.0	1,200	24.40	0.17	n/a	n/a	n/a	0.0119	0.0259
													0.094	0.206
Fugitive Fly Ash Baghouse	BH8	549725.4	4828570.6	797.0	7.6	298.0	4,523	33.10	0.29	n/a	n/a	n/a	0.0448	0.0977
													0.356	0.775
Ventilex Dryer	DRYER	549735.6	4828466.0	797.0	9.1	477.6	11,000	10.01	0.81	n/a	n/a	0.061	0.0043	0.0094
													0.034	0.075

g/sec Conversion: 3600 sec/hr divided by 453.5924 g/lb = lb/hr

n/a - not applicable
1 All UTM source coordinates shown are in NAD 83.
2 Release heights for volume sources were based on the estimated height of the material handling activities.
3 Sigma y values for material handling volume sources were calculated by dividing the estimated initial length of the volume source by 4.3, per AERMOD guidance.
4 Sigma z values for material handling volume sources were calculated by dividing the vertical source dimension (estimated as the release height) by 2.15, per AERMOD guidance.

TABLE 3-5

TAP SOURCE EMISSION RATES AND STACK PARAMETERS

Source Description	Model ID	Source UTM Location[1]		Base Elevation (m)	Stack/ Release Height (m)[2]	Temperature (K)	Flow Rate (ft^3/min)	Velocity (m/s)	Diameter (m)	Sigma-y (m)[3]	Sigma-z (m)[4]	Long-Term Emission Rates (g/s)[5]		
		Easting (m)	Northing (m)									Formaldehyde	Arsenic	Cadmium
Volume Sources														
Truck Material Handling	TRUCK	549731.5	4828422.2	797.0	4.6	n/a	n/a	n/a	n/a	0.57	2.13	n/a	n/a	n/a
Front-End Loader Material Handling	FEL	549728.2	4828442.8	797.0	5.0	n/a	n/a	n/a	n/a	0.43	2.33	n/a	n/a	n/a
Feeder Belt Transfer	FB	549728.2	4828447.0	797.0	3.0	n/a	n/a	n/a	n/a	1.77	1.42	n/a	n/a	n/a
Feed Conveyor Transfer	FC	549728.2	4828452.3	797.0	6.1	n/a	n/a	n/a	n/a	1.77	1.42	n/a	n/a	n/a
Point Sources														
Ventilex B.V. Fluid Bed Dryer & Cooler Baghouse	BH1	549735.6	4828466.0	797.0	9.1	477.6	11,000	10.0	0.81	n/a	n/a	n/a	n/a	n/a
Dryer Fugitive Dust Collector Baghouse	BH2	549725.5	4828447.0	797.0	11.6	298.0	15,000	19.1	0.69	n/a	n/a	n/a	n/a	n/a
Plant and Fugitive Dust Collector Baghouse	BH3	549721.4	4828466.6	797.0	9.1	298.0	18,000	16.4	0.81	n/a	n/a	n/a	n/a	3.31E-11
Outside Storage Silo Fugitive Dust Baghouse	BH4	549721.4	4828463.2	797.0	20.1	298.0	508	6.2	0.22	n/a	n/a	n/a	n/a	n/a
Fly Ash Bin Vent Filter No. 1	BH5	549719.4	4828565.6	797.0	26.2	298.0	1,200	24.4	0.17	n/a	n/a	n/a	n/a	9.35E-15
Fly Ash Bin Vent Filter No. 2	BH6	549725.4	4828565.6	797.0	26.2	298.0	1,200	24.4	0.17	n/a	n/a	n/a	n/a	9.35E-15
Fly Ash Bin Vent Filter No. 3	BH7	549731.4	4828565.6	797.0	26.2	298.0	1,200	24.4	0.17	n/a	n/a	n/a	n/a	9.35E-15
Fugitive Fly Ash Baghouse	BH8	549725.4	4828570.6	797.0	7.6	298.0	4,523	33.1	0.29	n/a	n/a	n/a	n/a	3.52E-14
Ventilex Dryer	DRYER	549735.6	4828466.0	797.0	9.1	477.6	11,000	10.0	0.81	n/a	n/a			4.95E-06

n/a - not applicable; TBD - to be determined
1 All UTM source coordinates shown are in NAD 83.
2 Release heights for volume sources were based on the estimated height of the material handling activities.
3 Sigma y values for material handling volume sources were calculated by dividing the estimated initial length of the volume source by 4.3, per AERMOD guidance. The initial lengths were assumed as follows: TRUCK = 8 feet; FEL = 6 feet; FB and FC = 25 feet.
4 Sigma z values for material handling volume sources were calculated by dividing the vertical source dimension (estimated as the release height) by 2.15, per AERMOD guidance.
5 TAPs emission rates were calculated by dividing the maximum pounds per day emission rate by 24 hours, and converting to a g/s value.

Point Sources

Baghouses and the natural gas-fired dryer were modeled as point sources. These sources are summarized below. Baghouse capture efficiencies and all stack parameters have been provided by the manufacturers and are included as an Attachment. Stack heights and temperatures were provided by Handy personnel.

(1) Ventilex Baghouse Model No. 150-3500-192

This baghouse captures emissions from the sand and gravel drying and cooling process in the Ventilex Fluid Bed Dryer and Cooler. The manufacturer's capture efficiency is listed as 10 mg/Nm^3, which is equivalent to 0.005 grains per dry standard cubic foot (gr/dscf).

(2) Carbo Tech Baghouse Model No. 12-12-12-2714-RTH

This baghouse captures fugitive dust emissions from the drying and cooling process in the Ventilex Fluid Bed Dryer and Cooler. The manufacturer's capture efficiency is listed as 0.005 gr/dscf.

(3) IAC Systems, Inc. Baghouse Model No. 120TB-BHT-196-Style 3

This baghouse captures concrete plant fugitive dust emissions, including emissions from the dry conveyor belts and transfer points in the concrete plant, raw cement handling and transfer to the silo in the concrete plant, the material classifier, and the bucket elevators. The manufacturer's capture efficiency is listed as 0.02 gr/dscf.

(4) MikroPul Baghouse Model No. B.V.-30

Fugitive dust emissions from the white silo in the concrete plant, also known as the outside sand silo, are vented through this baghouse. The manufacturer's capture efficiency is listed as 0.02 gr/dscf.

(5) IAC Systems, Inc. Baghouse Model No. 84TB-BVI-16 Style 2

Fugitive dust emissions from the Track Loadout System fly ash bin vent filter No. 1 are vented through this baghouse. The manufacturer's capture efficiency is listed as 0.02 gr/dscf.

(6) IAC Systems, Inc. Baghouse Model No. 84TB-BVI-16 Style 2

Fugitive dust emissions from the Track Loadout System fly ash bin vent filter No. 2 are vented through this baghouse. The manufacturer's capture efficiency is listed as 0.02 gr/dscf.

(7) IAC Systems, Inc. Baghouse Model No. 84TB-BVI-16 Style 2

Fugitive dust emissions from the Track Loadout System fly ash bin vent filter No. 3 are vented through this baghouse. The manufacturer's capture efficiency is listed as 0.02 gr/dscf.

(8) MikroPul Baghouse Model No. 64S-10-20-C

This baghouse captures fugitive fly ash emissions from the track loadout system. The baghouse also collects emissions from the bulk material transfer of flash from the silos to truck trailers for transport off site. The manufacturer's capture efficiency is listed as 0.02 gr/dscf.

Emissions from the 10 mmBTU/hr natural gas-fired dryer were modeled as a point source as well. In the dryer, material is heated to 400 degrees F then cooled to ambient temperature. Fugitive dust from the dryer is controlled with a dust collector, as discussed above. All emissions from the drying process are captured in the two baghouses described above.

3.8 MODEL RESULTS

PM_{10} and NO_x emissions were modeled using AERMOD. As shown in Table 3-6, modeled concentrations of annual and 24-hour PM_{10} emissions exceeded their respective SCLs. Therefore, a cumulative impact analysis was conducted for PM_{10}. Figures 3-3 and 3-4 show results of significant impact modeling for 24-hour and annual PM_{10}, respectively.

Cumulative modeling for both averaging periods demonstrates that the Handy facility will comply with the NAAQS levels. The highest sixth high cumulative 24-hour PM_{10} impact, with the background value added, is 148.6 $\mu g/m^3$. The highest cumulative annual PM_{10} impact, with the background value added, is 43.1 $\mu g/m^3$. These values are below the respective NAAQS values of 150 $\mu g/m^3$ and 50 $\mu g/m^3$. Figures 3-5 and 3-6 present NAAQS impact contours for PM_{10}.

AERMOD modeling was completed for TAPs emissions (formaldehyde, arsenic, and cadmium) using an annual averaging period because these TAPs are in the carcinogen category, per IDAPA 58.01.01.585 and 586. The maximum annual impact from formaldehyde emissions at the Handy facility, 7.7×10^{-4} $\mu g/m^3$, is less than the AAC established in IDAPA 58.01.01 (7.7×10^{-2} $\mu g/m^3$). The maximum annual impact from arsenic emissions at the Handy facility, 2.1×10^{-6} $\mu g/m^3$, is less than the AAC established in IDAPA 58.01.01 (2.3×10^{-4} $\mu g/m^3$). The maximum annual impact from cadmium emissions at the Handy facility, 5.4×10^{-6} $\mu g/m^3$, is less than the AAC established in IDAPA 58.01.01 (5.6×10^{-4} $\mu g/m^3$). Tables 3-6 and 3-7 summarize the modeling results for TAPs. Note that calculated gram/second emission rates for cadmium and arsenic sources were multiplied by 10^6 for modeling so that reported AERMOD concentrations would be greater than zero. Modeled concentrations for these two pollutants were then divided by 10^6 to determine actual concentrations.

All electronic modeling files used in this analysis are included in this permit application on CD-ROM.

TABLE 3-6

HANDY TRUCK LINE SCL MODEL RESULTS

Pollutant	Averaging Period	UTM-X Location (m)	UTM-Y Location (m)	Year	Maximum Modeled Concentration ($\mu g/m^3$)[a]	SCL ($\mu g/m^3$)[a]
PM_{10}	Annual	549757.0	4828435.0	1991	18.0	1
	24-hour	549671.0	4828467.0	1988	67.4	5
NO_2[c]	Annual	549671.4	4828447.0	1990	0.82	1
Arsenic	Annual	549671.4	4828447.0	1990	2.1E-06	N/A[b]
Cadmium	Annual	549672.8	4828377.0	1990	5.4E-06	N/A[b]
Formaldehyde	Annual	549671.4	4828447.0	1990	7.7E-04	N/A[b]

a $\mu g/m^3$ = micrograms per cubic meter
b N/A = not applicable
c The NOx to NO_2 conversion factor of 0.75 was applied.

TABLE 3-7

HANDY TRUCK LINE CUMULATIVE MODEL RESULTS

Pollutant	Averaging Period	Year	Maximum Modeled Concentration (μg/m³)[a]	Background Concentration (μg/m³)[a]	Total Concentration (μg/m³)[a]	National AAQS (μg/m³)[a]	Annual AAC (μg/m³)[a]
PM_{10}	Annual	1991	18.0	25.1	43.1	50	N/A[b]
	24-hour	1988	58.6[c]	90.0	148.6	150[d]	N/A[b]
Arsenic	Annual	1990	2.1E-06	N/A[b]	2.1E-06	N/A[b]	2.3E-04
Cadmium	Annual	1990	5.4E-06	N/A[b]	5.4E-06	N/A[b]	5.6E-04
Formaldehyde	Annual	1990	7.7E-04	N/A[b]	7.7E-04	N/A[b]	7.7E-02

a μg/m³ = micrograms per cubic meter
b N/A = not applicable
c Modeled concentration shown is highest sixth high value over five years of modeling.
d Not to be exceeded more than once per calendar year.

FIGURE 3-3

24-HOUR PM_{10} SIGNIFICANT CONTRIBUTION LEVEL CONCENTRATIONS

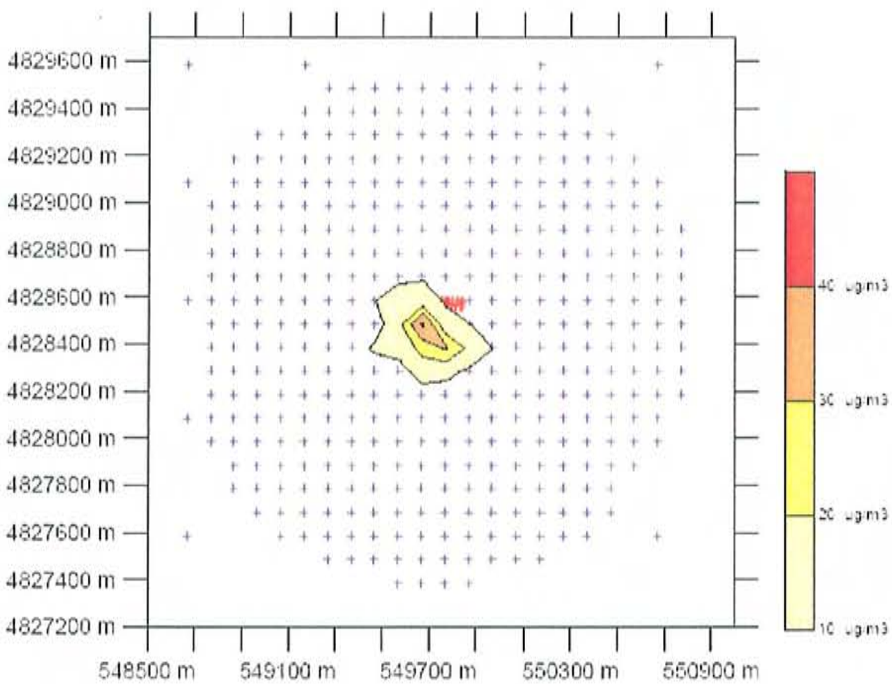


FIGURE 3-4

ANNUAL PM_{10} SIGNIFICANT CONTRIBUTION LEVEL CONCENTRATIONS

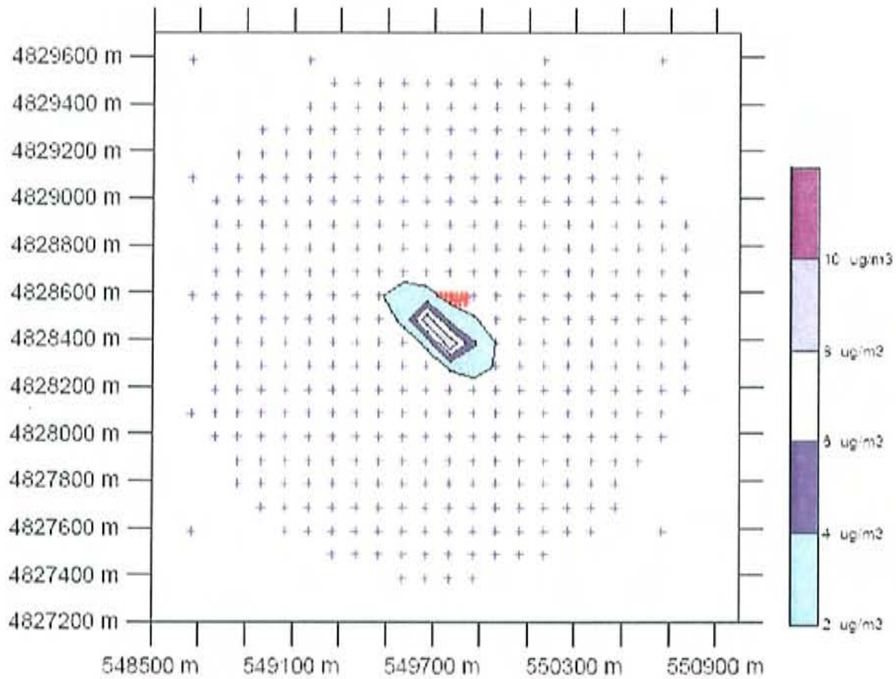


FIGURE 3-5

24-HOUR PM_{10} NAAQS CONCENTRATIONS

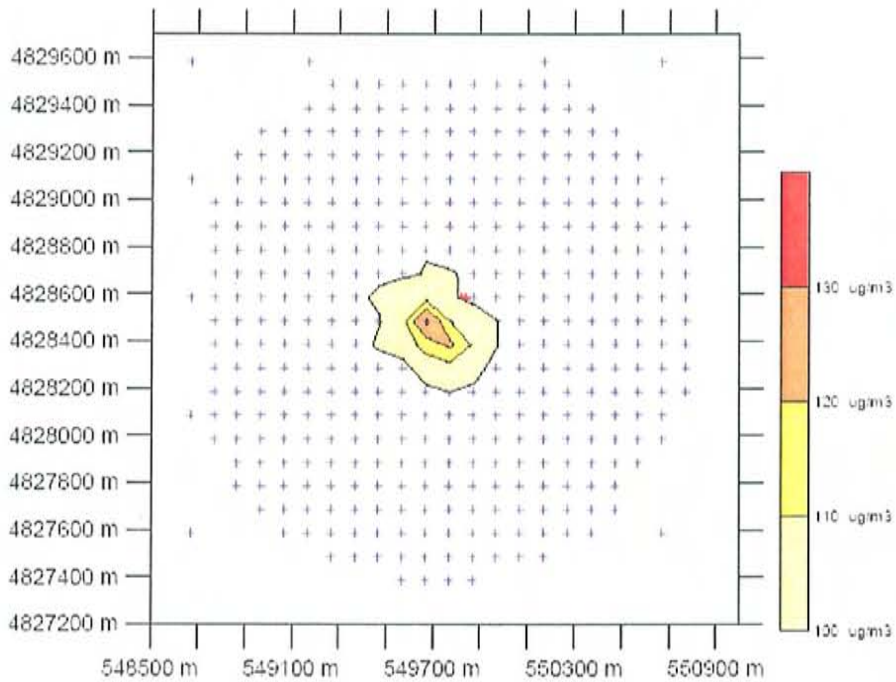
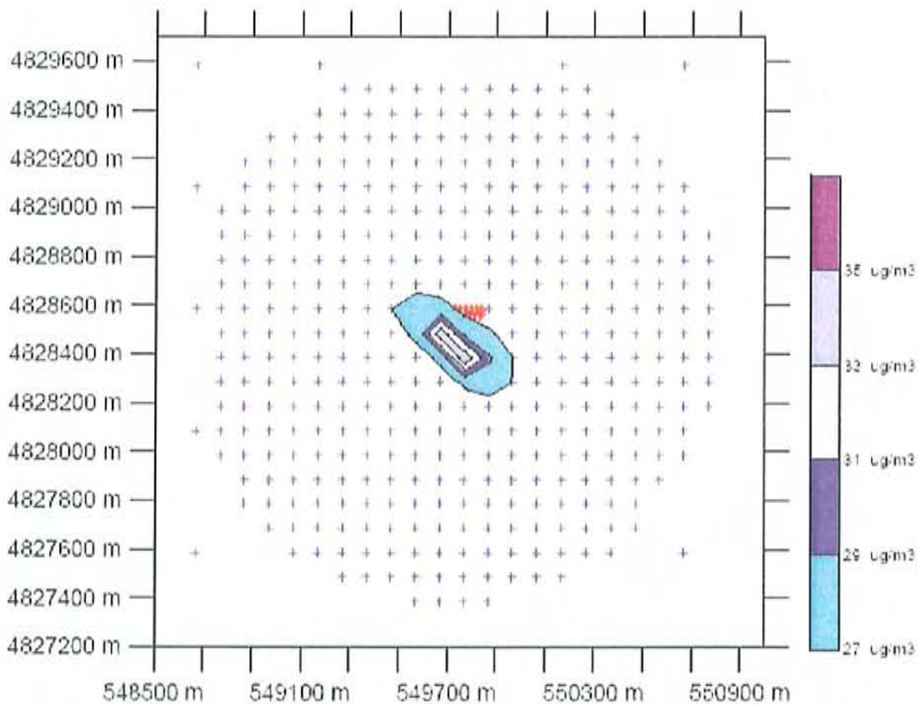


FIGURE 3-6

ANNUAL PM_{10} NAAQS CONCENTRATIONS



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